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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/531,189	10/06/2005	Ermanno Filippi	9526-52 (166267)	6283
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AKERMAN SENTERFITTT P.O. BOX 3188 WEST PALM BEACH, FL 33402-3188			EXAMINER MARTINEZ, BRITTANY M	
			ART UNIT 1793	PAPER NUMBER
			NOTIFICATION DATE 04/01/2010	DELIVERY MODE ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ip@akerman.com

# Office Action Summary

## Application No.

10/531,189

## Applicant(s)

FILIPPI ET AL.

## Examiner

BRITTANY M. MARTINEZ

## Art Unit

1793

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 08 January 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-3 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/CD)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Status of Application*

Applicants' arguments/remarks and amendment filed January 8, 2010, have been carefully considered. **Claims 1-3** are pending in the instant application, with **Claim 3** amended. **Claims 4-7** have been cancelled. **Claims 1-3** have been examined.

### *Claim Rejections - 35 USC § 102/103*

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. **Claims 1-2** are rejected under 35 U.S.C. 102(a) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Filippi et al. (EP 1236505 A1) (of record).
1. With regard to **Claim 1**, Filippi discloses a method for carrying out highly exothermic oxidative reactions in pseudo-isothermal conditions, between reactants fed in continuous flow to a predetermined catalytic bed, the method comprising: feeding at least a part of said continuous flow of reactants within a catalytic mass of said catalytic bed at different points of said catalytic mass corresponding to different successive

stages of the reaction which takes place in said catalytic bed, at respective different predetermined temperatures and flow-rates (Filippi, "Abstract;" 0001-0003; 0013-0017; 0021-0038; 0040-0041; Claim 1; Figures 1-5), substantially as in the instant application.

2. With regard to **Claim 2**, Filippi discloses positioning a plurality of distribution-suppliers in said catalytic bed, at different points thereof strictly corresponding to different predetermined stages of said oxidative reaction, dividing said continuous flow of reactants into a first part or main flow and a second part or control flow with a predetermined temperature and flow-rate, preheating said first part or main flow through heat exchange with said catalytic bed, feeding said first part or main flow through a plurality of heat exchangers immersed and supported in said catalytic bed, recovering said main flow of preheated reactants and feeding said main flow continuously to said catalytic bed, and feeding said second part or control flow to said plurality of distribution-suppliers to inject respective fresh flows of reactants at a predetermined temperature and flow-rate into the catalytic bed (Filippi, "Abstract;" 0001-0003; 0013-0017; 0021-0038; 0040-0041; Claim 1; Figures 1-5), substantially as in the instant application.

3. **Claims 1 and 2** are also obvious over Filippi because anticipation is the epitome of obviousness.

4. **Claims 1-3** are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Groombridge (GB 391444) (newly cited).

4. With regard to **Claim 1**, Groombridge discloses a method for carrying out highly exothermic oxidative reactions in pseudo-isothermal conditions, between reactants fed in continuous flow to a predetermined catalytic bed, the method comprising: feeding at least a part of said continuous flow of reactants within a catalytic mass of said catalytic bed at different points of said catalytic mass corresponding to different successive stages of the reaction which takes place in said catalytic bed, at respective different predetermined temperatures and flow-rates (Groombridge, p. 1, l. 46-107; p. 2, l. 27-113; p. 3, l. 1-130; p. 4, l. 1-38; Claims 1-8; Figures 1 and 2), substantially as in the instant application.

5. With regard to **Claim 2**, Groombridge discloses positioning a plurality of distribution-suppliers in said catalytic bed, at different points thereof strictly corresponding to different predetermined stages of said oxidative reaction, dividing said continuous flow of reactants into a first part or main flow and a second part or control flow with a predetermined temperature and flow-rate, preheating said first part or main flow through heat exchange with said catalytic bed, feeding said first part or main flow through a plurality of heat exchangers immersed and supported in said catalytic bed, recovering said main flow of preheated reactants and feeding said main flow continuously to said catalytic bed, and feeding said second part or control flow to said plurality of distribution-suppliers to inject respective fresh flows of reactants at a predetermined temperature and flow-rate into the catalytic bed (Groombridge, p. 1, l. 46-107; p. 2, l. 27-113; p. 3, l. 1-130; p. 4, l. 1-38; Claims 1-8; Figures 1 and 2), substantially as in the instant application.

6. With regard to **Claim 3**, Groombridge discloses a reactor for carrying out a highly exothermic oxidative reaction in pseudo-isothermal conditions, comprising a shell in which a reaction zone is defined; a catalytic bed at least partially occupying the reaction zone; a plurality of heat exchangers immersed in the catalytic bed and at least one distribution-supplier associated with each of said heat exchangers, said distribution-supplier suitable for being fed continuously by a flow of reactants at a predetermined temperature and flow rate, wherein said heat exchangers are plate-shaped and substantially rectangular and define therein a first chamber, intended to be crossed by a respective flow of reactants to be preheated, and a second chamber, separated fluid-tight from said first chamber and in fluid communication with said at least one distribution-supplier, and wherein said at least one distribution-supplier is supported by a respective heat exchanger and comprises a carter fixed to a wall of said respective heat exchanger, with which it substantially defines a duct in fluid communication, on one side, with said second chamber of the exchanger and, on the other side, with the outside of the exchanger through a plurality of holes formed in said carter (Groombridge, p. 1, l. 46-107; p. 2, l. 27-113; p. 3, l. 1-130; p. 4, l. 1-38; Claims 1-8; Figures 1 and 2).
7. **Claims 1-3** are also obvious over Groombridge because anticipation is the epitome of obviousness.

***Claim Rejections - 35 USC § 103***

8. **Claim 3** is rejected under 35 U.S.C. 103(a) as being unpatentable over Filippi et al. (EP 1236505 A1) (of record) in view of Zardi (US 4,769,220) (of record).
9. With regard to **Claim 3**, Filippi discloses a reactor for carrying out a highly exothermic oxidative reaction in pseudo-isothermal conditions, comprising a catalytic bed; a plurality of heat exchangers immersed in the catalytic bed and at least one distribution-supplier associated with each of said heat exchangers, said distribution-supplier suitable for being fed continuously by a flow of reactants at a predetermined temperature and flow rate, wherein said heat exchangers are plate-shaped and substantially rectangular and define therein a first chamber, intended to be crossed by a respective flow of reactants to be preheated, and a second chamber, separated fluid-tight from said first chamber and in fluid communication with said at least one distribution-supplier, and wherein said at least one distribution-supplier is supported by a respective heat exchanger and comprises a carter fixed to a wall of said respective heat exchanger, with which it substantially defines a duct in fluid communication, on one side, with said second chamber of the exchanger and, on the other side, with the outside of the exchanger through a plurality of holes formed in said carter (Filippi, "Abstract;" 0002-0003; 0021-0052; Claims 1-6; Figures 1-5). The difference between the apparatus of Filippi and that of **Claim 3** is Filippi does not disclose a shell in which is defined a reaction zone at least partially occupied by the catalytic bed.
10. With regard to **Claim 3**, Zardi discloses a pseudo-isothermal chemical reactor for carrying out highly exothermic catalyzed oxidative reactions, comprising a shell in which

is defined a reaction zone at least partially occupied by a catalytic bed, wherein heat exchangers are immersed in said catalytic bed (Zardi, "Abstract;" Figure; c. 1, l. 10-13 and 60-68; c. 2, l. 1-2; Claim 1).

11. Thus, it would have been obvious to one of ordinary skill in the art to try to modify the apparatus of Filippi with the shell-enclosed reaction zone of Zardi because one of ordinary skill in the art could have pursued the known potential pseudo-isothermal chemical reactor design options within his or her technical grasp with a reasonable expectation of success.

### ***Double Patenting***

12. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thornton*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

5. **Claims 1-3** are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over Claims 1-3 and 7 of copending



Application No. 11/572403 (of record). Although the conflicting claims are not identical, they are not patentably distinct from each other because Application No. 11/572403 discloses a pseudo-isothermal chemical reactor for carrying out highly exothermic catalyzed oxidative reactions, comprising a shell in which is defined a reaction zone at least partially occupied by a catalytic bed, wherein heat exchangers according to **Claim 3** are immersed in said catalytic bed, substantially as in the instant application.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

6. **Claims 1-3** are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over Claims 1-10 of U.S. Patent No. 7,186,389 B2 (of record) in view of Filippi et al. (EP 1236505 A1) (of record), as applied in the prior Office action.

7. **Claims 1-3** are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over Claims 1-6 of U.S. Patent No. 7,087,205 B2 (of record). Although the conflicting claims are not identical, they are not patentably distinct from each other because U.S. Patent No. 7,087,205 B2 discloses a method for carrying out highly exothermic oxidative reactions in pseudo-isothermal conditions and an apparatus for doing such, substantially as in the instant application.

***Response to Amendment***

Applicants' amendment filed January 8, 2010, with respect to the Claims has been fully considered and is accepted.

***Response to Arguments***

8. Applicants' arguments filed January 8, 2010, with respect to Filippi have been fully considered but are not persuasive. Applicants' argument that the apparatus of Filippi discloses a carter without holes (Applicants' Response, 1/8/10, p. 4-5) is not convincing. Filippi does in fact disclose a carter with holes (Filippi, Figure 4 and Claim 6). Applicants' argument that "[n]o fluid communication between any chamber of the exchanger and the catalyst mass is possible or suggested with the apparatus according to Filippi" (Applicants' Response, 1/8/10, p. 4-5) is not convincing. In the apparatus of Filippi, fluid communication between a chamber of the exchanger and the catalyst mass is possible (Filippi, "Abstract;" 0001-0003; 0013-0017; 0021-0038; 0040-0041; Figures 1-5; and Claims 1-6).
9. Applicants' arguments filed January 8, 2010, regarding the Double Patenting rejections have been fully considered but they are not persuasive. Applicants' argument that copending Application No. 11/572403 does not disclose any of the features of the claimed distributor-supplier (Applicants' Response, 1/8/10, p. 5) is not convincing. Claims 1-3 and 7 of copending Application No. 11/572403 disclose features of the claimed distributor-supplier. Applicants' argument that U.S. Patent No. 7,186,389 B2 does not disclose feeding of reactants within the catalytic mass at different points or

fluid communication between the internal of the heat exchanger and the catalyst mass (Applicants' Response, 1/8/10, p. 5) is not convincing. Claims 1-10 of U.S. Patent No. 7,186,389 B2 disclose feeding of reactants within the catalytic mass at different points and fluid communication between the internal of the heat exchanger and the catalyst mass. Applicants' argument that no fluid communication between any chamber of the exchanger and the catalyst mass is possible or suggested with the apparatus of U.S. Patent No. 7,087,205 B2 (Applicants' Response, 1/8/10, p. 5-6) is not convincing. In the apparatus of Claims 1-6 of U.S. Patent No. 7,087,205 B2, fluid communication between a chamber of the exchanger and the catalyst mass is possible.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BRITTANY M. MARTINEZ whose telephone number is (571) 270-3586. The examiner can normally be reached Monday-Friday 9:00AM-5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached at (571) 272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Wayne Langel/  
Primary Examiner, Art Unit 1793

BMM  
/Brittany M Martinez/